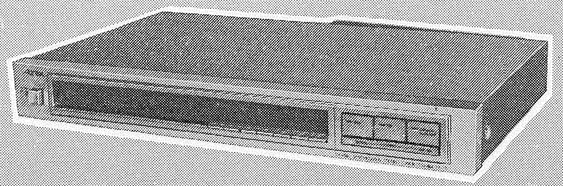
SERVICE DATA
FILE NO.170-158

TOSHIBA

DIGITAL SYNTHESIZER STEREO TUNER

ST-S5



SPECIFICATIONS

■ General Data

Power supply:	220V – 50 Hz for Europe 240V – 50 Hz for United Kingdom & Australia
Power consumption:	12W
System dimensions:	420(W) x 58(H) x 286.5(D) mm
System weight:	2.6 kg

■ Tuner

Micro computer controlled synthesizer tuning

Frequency range:	FM: 87.50 – 108.00 MHz 410 channel AM: 522 – 1602 kHz 120 channel
Memory:	6 channels each band (FM/AM)
Functions:	Manual scanning (FM 50 kHz step, AM 9 kHz step)

■ FM Tuner Section

Sensitivity (IHF):	1.9μV (10.8 dBf)
Harmonic distortion:	1 kHz MONO 0.15% STEREO 0.25%
S/N:	MONO 72 dB STEREO 68 dB
Frequency response:	30 – 15 kHz ±1.0 dB
Selectivity (IHF):	75 dB (±300 kHz)
Image rejection:	50 dB
IF rejection:	80 dB
Capture ratio:	1.0 dB
Spurious response:	70 dB
AM suppression:	55 dB
Stereo separation:	40 dB (at 1 kHz)

■ AM Tuner Section

Receiving frequency:	522 – 1602 kHz (9 kHz step)
Sensitivity:	200μV/m
Selectivity:	30 dB
Image rejection:	50 dB
S/N:	55 dB

TE, TU, AY, IT

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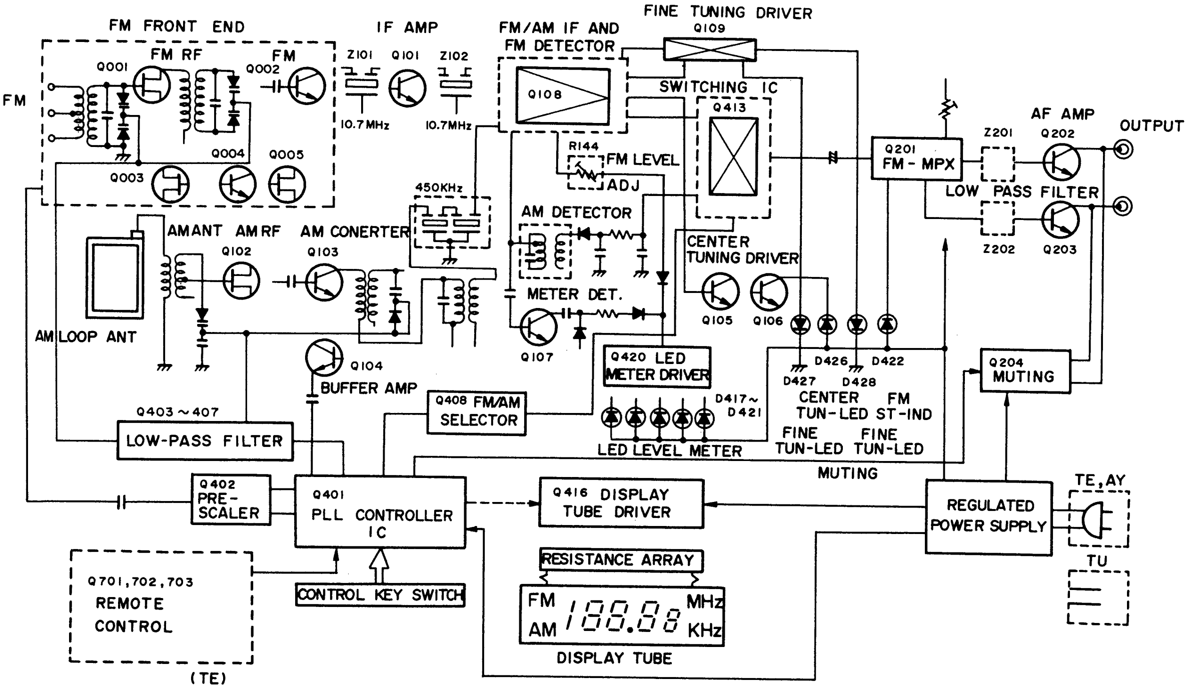
1. BLOCK DIAGRAM



FINE TUNING DRIVER
Q109
FM FRONT END
IF AMP
FM/AM IF AND
FM DETECTOR
FM RF
FM
Q001
Q002
Z101
Q101
Z102
Q108
SWITCHING IC
Q413
FM
10.7MHz
10.7MHz
Q004
Q005
Q003
R144
FM LEVEL
ADJ
Q201
FM - MPX
Z201
AF AMP
Q202
OUTPUT
LOW PASS FILTER
450KHz
AM DETECTOR
AMANT
AM RF
AM CONERTER
Q102
Q103
CENTER
TUNING DRIVER
Z202
Q203
METER DET.
Q105
Q106
AM LOOP ANT
Q104
BUFFER AMP
Q107
Q420 LED
METER DRIVER
D426
D422
D427
D428
Q204
MUTING
D417~
D421
CENTER
TUN-LED
FM
ST-IND
FINE
TUN-LED
FINE
TUN-LED
Q408 FM/AM
SELECTOR
LED LEVEL METER
Q403 ~ 407
LOW-PASS FILTER
MUTING
Q402
PRE-
SCALER
Q401
PLL CONTROLLER
IC
Q416 DISPLAY
TUBE DRIVER
REGULATED
POWER SUPPLY
TE, AY
TU
RESISTANCE ARRAY
Q701, 702, 703
REMOTE
CONTROL
(TE)
CONTROL KEY SWITCH
FM
AM
188.88
MHz
KHz
DISPLAY TUBE

Figure 1.

2. OPERATING CONTROLS

Front Panel Facilities

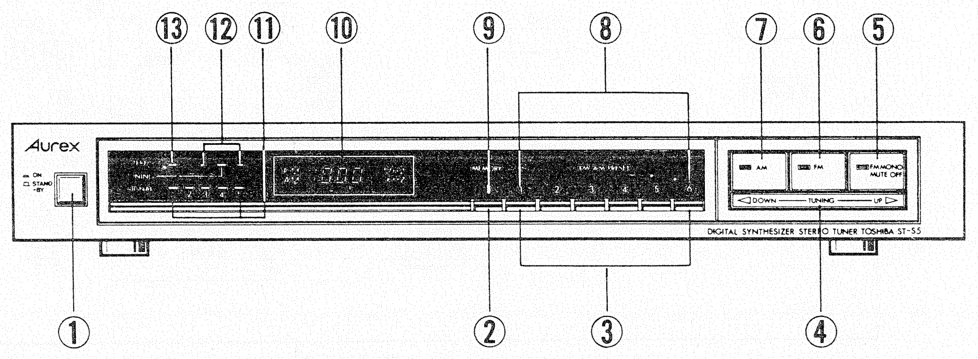


Figure 2.

① Function switch
Depress this switch to turn the power on, depress once more to put the equipment into the stand by mode.

② Memory button
To store the frequency of any desired station in the memory, first tune the frequency and then press this button. The memory indicator lamp ⑨ located in this button lights up, indicating that the memory is ready to accept the frequency. But note that the indicator lamp remains illuminated for only about 5 seconds.

③ Preset tuning buttons (1 – 6)
Whilst the memory indicator lamp ⑨ is illuminated, press one of these buttons ③. The frequency of the desired station is now stored in the memory. To tune in that frequency later, simply press the same tuning button.

④ Tuning button
When "down" is depressed, the tuned frequency is decreased in 50 kHz steps. This step-by-step change in frequency continues until the button is released.
Similarly, when "up" is depressed, the tuned frequency is increased in 50 kHz steps until the button is released. An electronic beeper sounds when any of the preset tuning buttons ③ or the radio tuning button ④ are pressed. A single beep is heard when a preset tuning button is pressed. A single beep also sounds when the radio tuning button is pressed either way, and is followed by shorter beeps for as long as the button remains depressed. The electronic beep is coded by tone to distinguish which broadcast band (FM or AM) is set.

⑤ FM mode button
When this button is depressed (LED lights up), muting does not function and FM stereo broadcasts are produced in monaural form. Use this position to receive weak stations that the muting circuitry might suppress. When this button is not depressed, the muting circuitry suppresses inter-station noise, and either FM stereo or monaural reception is possible.

(Indicator lights up)
⑥ ... for FM radio broadcasts
⑦ ... for AM radio broadcasts

■ INDICATORS

⑧ Preset indicator lamp
One of these LED lamps is illuminated whenever the corresponding preset tuning button ③ is pressed.

⑨ Memory indicator lamp
This LED lamp lights up for approximately 5 seconds when the memory button ② is pressed, indicating that the memory will accept a frequency for presetting during that period.

⑩ Digital frequency
The tuned frequency on either band (FM or AM) is displayed here in digital form.

⑪ Signal level
These LED lamps light up successively from left to right according to the strength of the signal being received. If fewer than four of five lamps light up when a local station is tuned, check aerial connections and direction.

⑫ Fine tuning
One of a pair of triangular red LEDs shows the proper direction for further tuning (up or down) by the tuning button. When the station is optimally tuned, the green LED between the triangular red LEDs lights up and neither red LED remains lighted.

⑬ FM stereo indicator lamp
This lamp is illuminated when an FM stereo broadcast is being received.

Connections

Refer to Figure 1.
(1) Terminals are provided for both 300 ohm and 75 ohm FM aerials. Please be sure to connect your aerial to the proper terminals.

(2) When listening to the AM band, set the AM loop antenna on the rear panel to the angle that gives the best reception. If reception is still not satisfactory, remove the loop antenna from the rear panel and place it in the location that gives the best reception.

(3) Connect the output terminals of the tuner to the tuner input terminals of your amplifier, making sure that the L and R cables are not reversed.

Tuner Operation

First press the desired radio band selector button ⑥ or ⑦.

- **Tuning**

Press the tuning button ④, keeping it depressed as the frequency display shifts toward the desired station frequency. When close to that frequency, release the button, then press again in single steps to tune in the station exactly.

- **Preset Tuning**

The major feature of the ST-S5 is the digital synthesizer tuner section and its capacity to memorize six separate stations on each of the two bands, for a total of 12 stations. Once a station is preset in the memory, it may be tuned instantly and accurately whenever desired by lightly pressing one button.
(1) First check the official broadcast frequency of the desired stations (up to six stations on each band), or simply tune in the stations as described above in Tuning.
(2) After confirming that the station is accurately tuned, press the memory button ②. The memory indicator lamp ⑨ in it will light up for about 5 seconds, showing that the memory is ready to store the frequency.
(3) Immediately press one of the preset tuning buttons ③, while the memory indicator lamp remains lighted. If the lamp goes off before the desired preset tuning button can be pressed, just press the memory button again.
(4) Repeat this procedure for each station to be stored in the memory.
(5) To tune in one of these preset stations later, make sure that the proper band is selected, then lightly press the preset tuning button corresponding to that station.

Note 1. In West Germany and a few other countries, assigned station frequencies are specified to 50 kHz (89.95 MHz or 89950 kHz, for example), rather than usual 100 kHz.

Note 2. To retain the contents of the memory, a small electric current flows through the unit even when the function switch is in stand by position. When the unit is not in use for a long period, it should be unplugged from the mains. But note that if this power interruption is longer than one day, preset memory is lost and those stations must be reset. To prevent loss of memory contents, do not unplug the power cord or turn off the switch at the wall socket for any length of time during normal use.

3. DISASSEMBLY INSTRUCTIONS

TOP COVER REMOVAL

1. Remove 4 screws Ⓐ, Ⓑ and Ⓒ to detach the top cover.

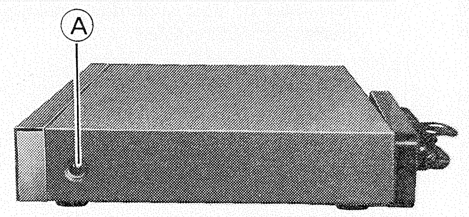


Figure 3.

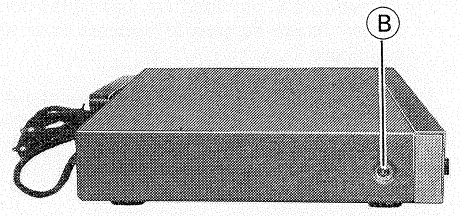


Figure 4.

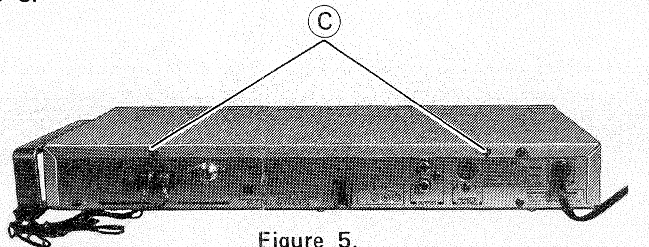


Figure 5.

FRONT PANEL ASSEMBLY REMOVAL (WITH P.C. BOARD)

1. Remove the top cover.
2. Remove 5 screws Ⓓ to detach the front panel assembly.

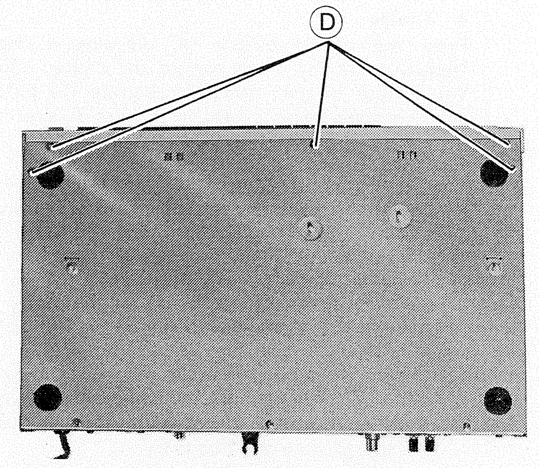


Figure 6.

MAIN P.C. BOARD ASSEMBLY REMOVAL

1. Remove the top cover.
2. Remove 3 screws Ⓔ and push the jack board to open the P.C. board.

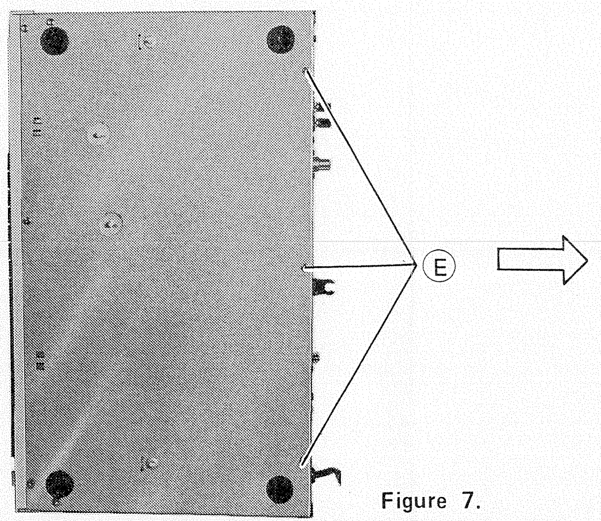


Figure 7.

Opened P.C. Board

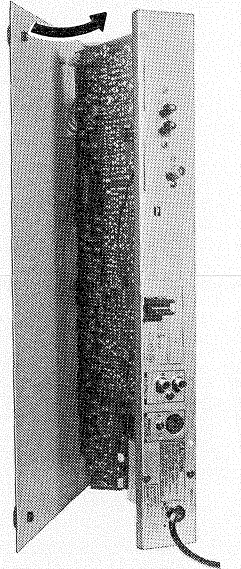


Figure 8.

4. ALIGNMENT INSTRUCTIONS

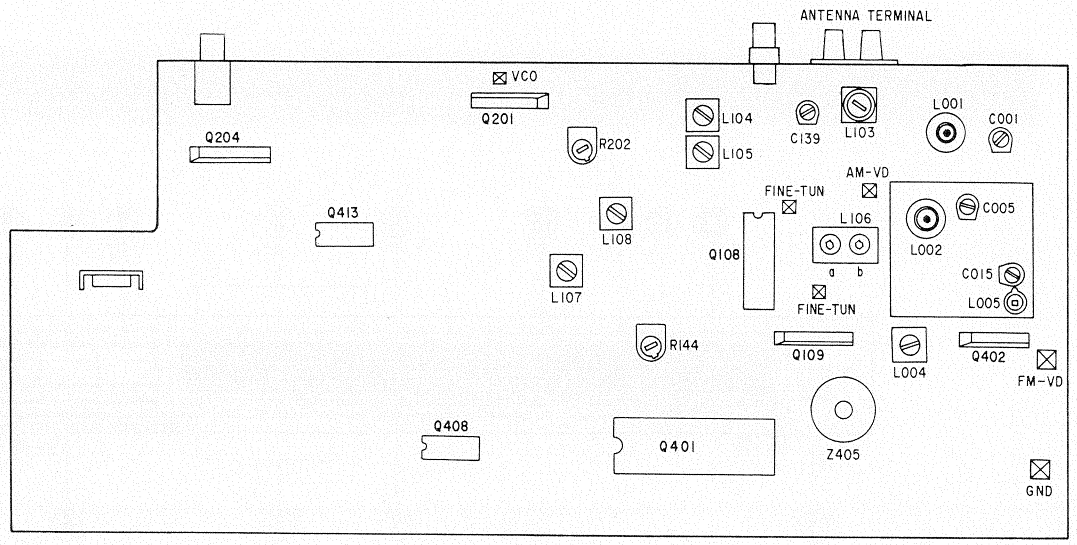

ANTENNA TERMINAL
VCO
Q201
Q204
R202
L104
L105
C139
L103
L001
C001
AM-VD
FINE-TUN
L106
a
b
FINE-TUN
C005
L002
C015
L005
Q413
L108
Q108
L107
R144
Q109
L004
Q402
FM-VD
Q408
Q401
Z405
GND

Figure 9.

AM ADJUSTMENT

Test equipments/Tools required

1. Signal generator (with frequency counter)
2. Sweep generator
3. Test loop antenna
4. Adjusting screwdriver
5. Oscilloscope
6. Dummy load resistor

Step	Adjustment	Remarks
IF Response	L105 L107	Adjust for scope pattern with specified marker (460 kHz) as illustrated in Fig. 42.

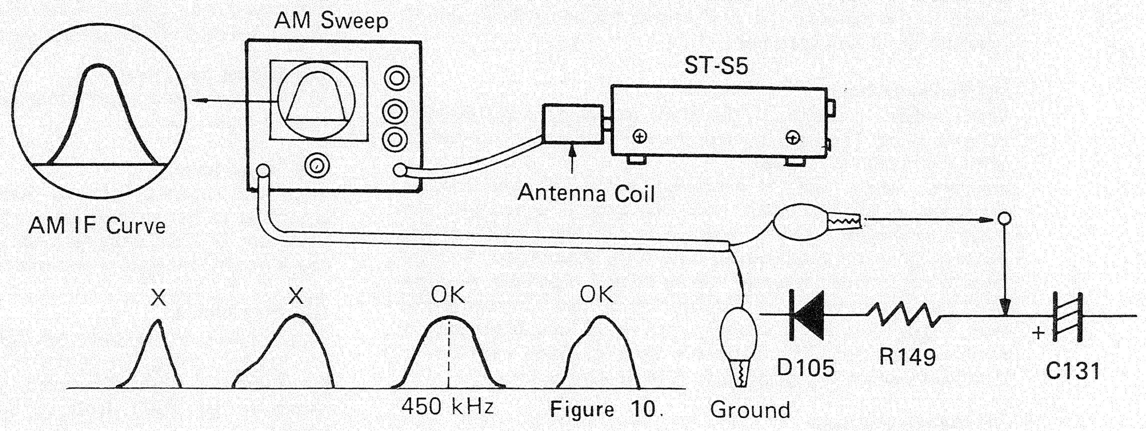

AM Sweep
ST-S5
Antenna Coil
AM IF Curve
X
X
OK
OK
450 kHz
D105
R149
C131
+
Ground

Figure 10.

Band	Step	Signal Generator Frequency	Connection		Display Frequency	Adjustment	Remarks
			Input	Output			
AM VD0	1		Connect signal generator to test loop	Connect Tester to AM-VD	522.0 kHz		Check 1.5V ± 0.5V
	2				1602.0 kHz	L104	Adjustment 21V ± 0.2V
FM VD0	3	87.500 MHz	Connect FM Signal Generator FM Antenna terminal	Connect Tester to FM-VD	87.5 MHz	L005	Adjustment 1V ± 0.2V
	4	108.000 MHz			108 MHz	C015	Adjustment 21V ± 0.2V
	5	Repeat steps 2 and 3.					

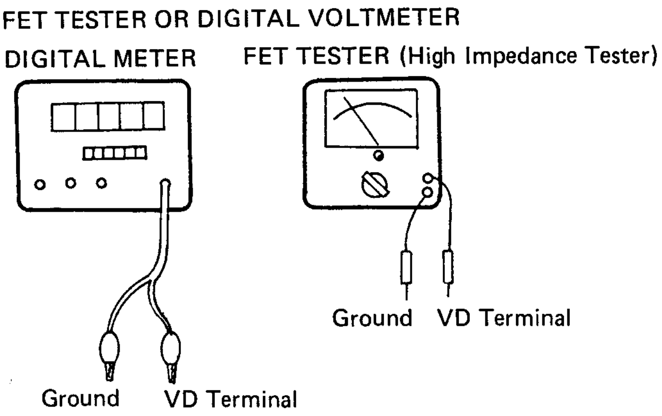
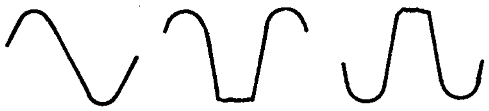

FET TESTER OR DIGITAL VOLTMETER
DIGITAL METER
FET TESTER (High Impedance Tester)
Ground
VD Terminal
Ground
VD Terminal

Figure 11.

TRACKING ADJUSTMENT

Test equipments/Tools required

1. Distortion
2. Signal generator
3. Oscilloscope
4. VTVM
5. FM dummy antenna (300 ohm)
6. Network
7. Adjusting screwdriver
8. Adjusting bar

Band	Step	Signal Generator Frequency	Connection		Display Frequency	Adjustment	Remarks
			Input	Output			
AM	1	603.0 kHz	Test Loop	Connect VTVM to Output Terminal	603 kHz	L103	Adjust for Maximum
	2	1404.0 kHz			1404 kHz	C139	Adjust for Maximum
	3	Repeat step 1 and 2.					
FM	1	88.000 MHz	Connect signal generator to FM Antenna Terminal.	Connect VTVM to output Terminal.	88 MHz	L001, 002	Adjust for maximum
	2	108.000 MHz			108 MHz	C001, 005	Adjust for maximum
	3	Repeat steps 1 and 2.					
	4	98.000 MHz	Connect signal generator to FM Antenna Terminal.	Connect VTVM to output Terminal.	98 MHz	L004	Adjust for minimum distortion and best waveform
					OK 	NG	NG

CAUTION: When realigning the FM Receiving Frequency, the lowest side of the frequency range must not be below 87.5 MHz and upper 108.2 MHz in order to comply with FTZ regulations in West Germany.

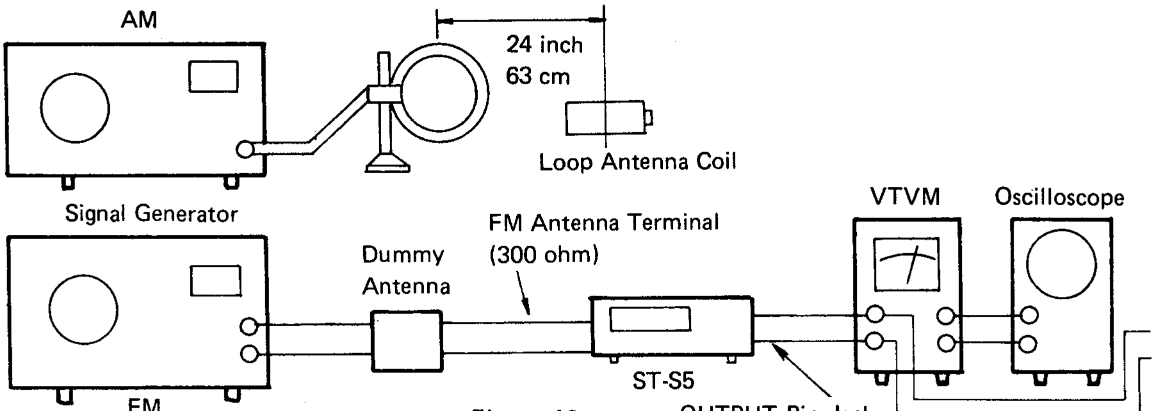

AM
24 inch
63 cm
Loop Antenna Coil
Signal Generator
VTVM
Oscilloscope
FM Antenna Terminal
(300 ohm)
Dummy
Antenna
ST-S5
FM
OUTPUT Pin Jack

Figure 12.

FM ADJUSTMENT

Test equipments/Tools required

1. Distortion meter
2. Signal generator
3. Oscilloscope
4. VTVM
5. Network
6. Adjusting screwdriver
7. Adjusting bar
8. Tuning meter

FM DISTORTION ADJUSTMENT

Band	Step	Signal Generator Frequency	Connection		Display Frequency	Adjustment	Remarks
			Input	Output			
FM	1	98.000 MHz 60 dB (MONO)	Connect Signal generator FM Antenna Terminal. Connect the modulator to signal generator	Connect VTVM oscilloscope and distortion meter to output terminal. Connect Tuning Meter to TP FINE-TU.	98 MHz	L106a a ◎ ◎	Adjust Tuning meter pointer so as to keep center.
	2					L106b b ◎ ◎	Distortion Minimum
	3	Repeat steps 1 and 2.					

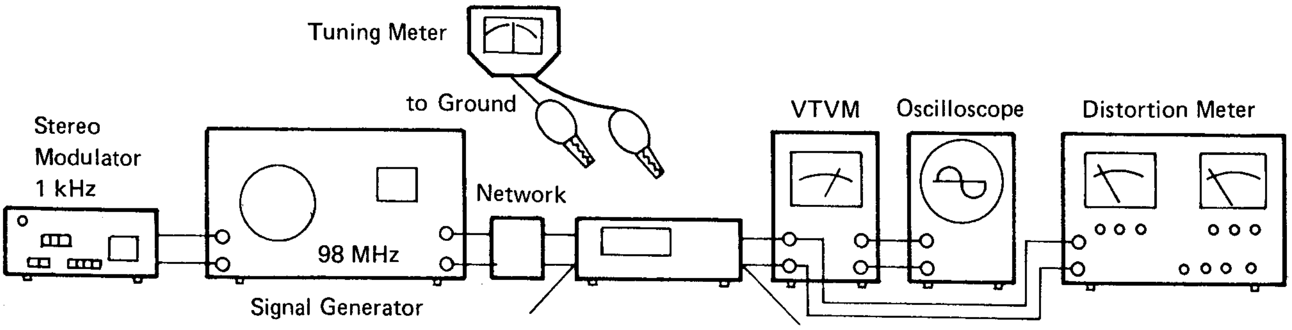

Tuning Meter
to Ground
Stereo
Modulator
1 kHz
98 MHz
Network
VTVM
Oscilloscope
Distortion Meter
Signal Generator
FM Antenna Terminal
(300 ohm)
Output Terminal

Figure 13.

Figure 21.

LED LEVEL METER ADJUSTMENT

Signal Generator Frequency	Connection	Display Frequency	Adjustment	Remarks
98 MHz 60 dB	Connect Signal generator FM Antenna Terminal	98 MHz	R144	Adjust for 5 LED to light

FM MPX ADJUSTMENT

Free-runing Frequency Adjustment	Connect Frequency Counter to the VCO adjust the Semi-fixed Resistor R202 for 38.00 kHz reading counter with NO Signal Input. (Mode Selector: STEREO Position)

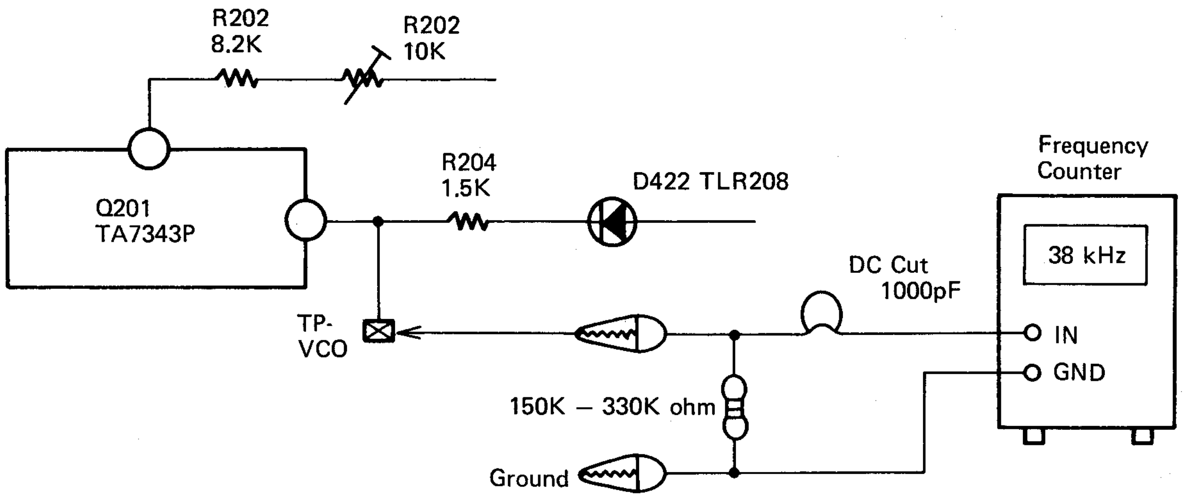
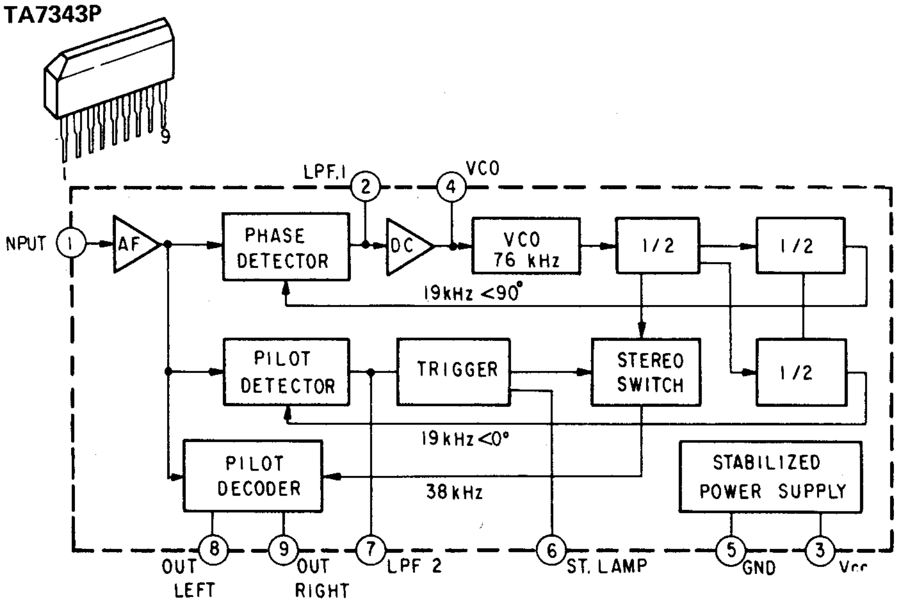

R202
8.2K
R202
10K
Q201
TA7343P
R204
1.5K
D422 TLR208
Frequency
Counter
38 kHz
DC Cut
1000pF
IN
GND
TP-
VCO
150K – 330K ohm
Ground

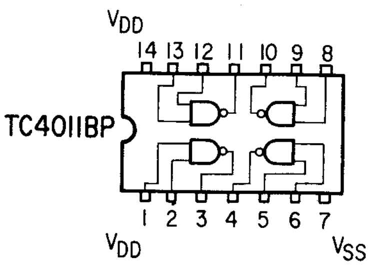
Figure 14.

5. IC BLOCK DIAGRAM

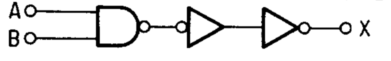
TA7343P


1
9
LPF.1
2
VCO
4
NPUT
1
AF
PHASE
DETECTOR
DC
VCO
76 kHz
1/2
1/2
19kHz <90°
PILOT
DETECTOR
TRIGGER
STEREO
SWITCH
1/2
19kHz <0°
PILOT
DECODER
38kHz
STABILIZED
POWER SUPPLY
8
OUT
LEFT
9
OUT
RIGHT
7
LPF 2
6
ST. LAMP
5
GND
3
Vcc

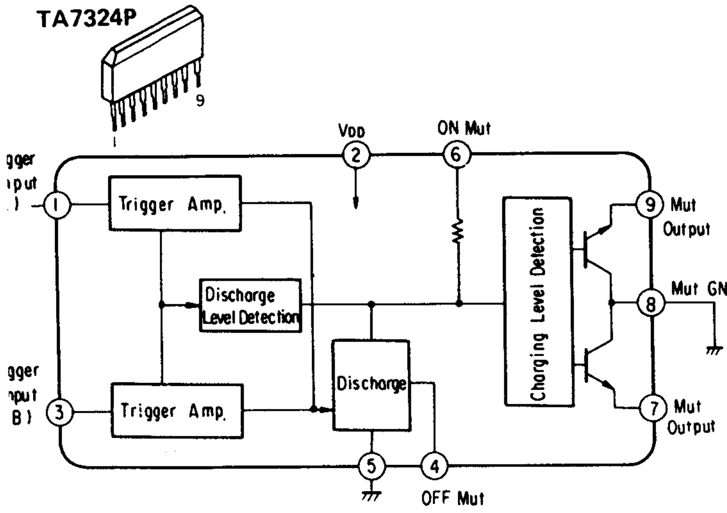
TC4011BP


VDD
14 13 12 11 10 9 8
TC4011BP
1 2 3 4 5 6 7
VDD
VSS

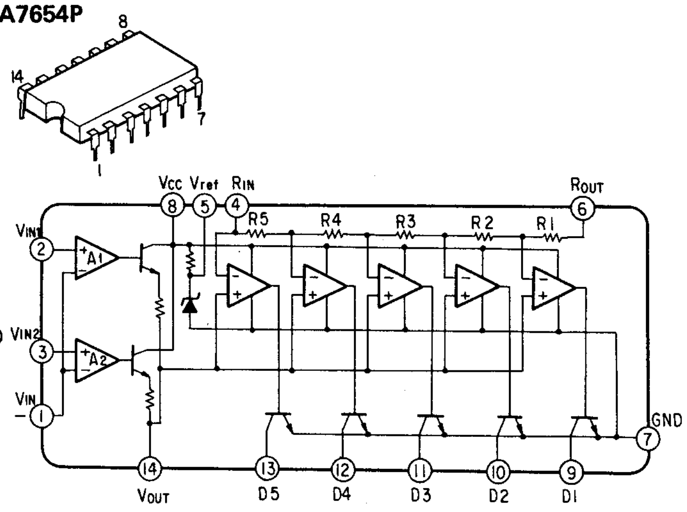
1/4 TC4011BP


X = $\overline{A \cdot B}$
A
B
X

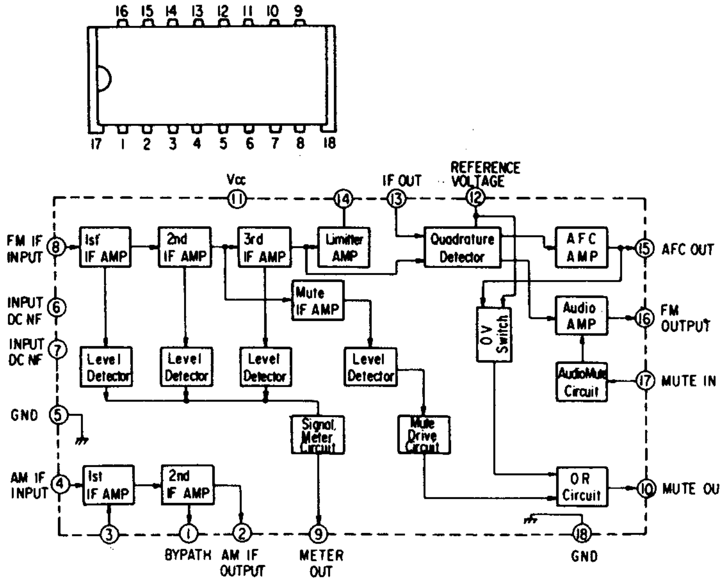
TA7324P


9
1
VDD
ON Mut
gger
ıput
)
gger
ıput
B)
Trigger Amp.
Discharge
Level Detection
Trigger Amp.
Discharge
Charging Level Detection
Mut
Output
Mut GND
Mut
Output
OFF Mut
1
2
3
4
5
6
7
8
9

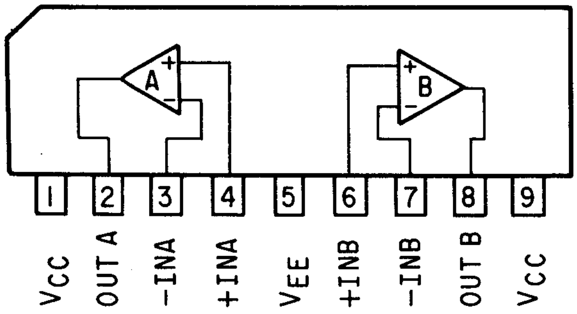
TA7654P


8
14
7
1
Vcc
Vref
RIN
ROUT
R5
R4
R3
R2
R1
VIN1
VIN2
VIN
A1
A2
GND
VOUT
D5
D4
D3
D2
D1

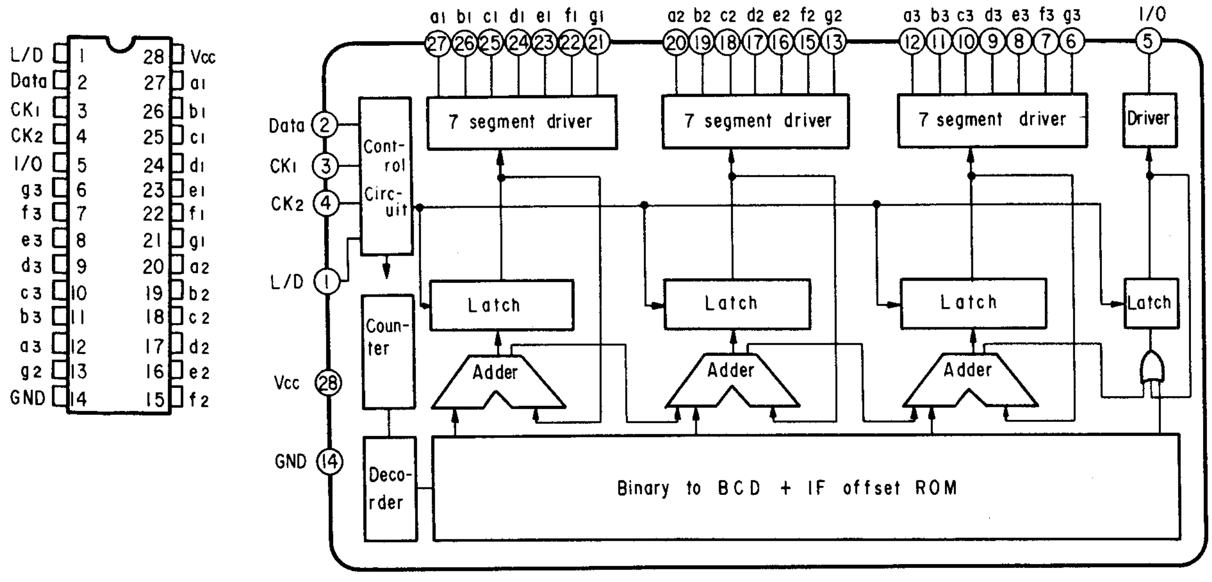
HA11211


16 15 14 13 12 11 10 9
17 1 2 3 4 5 6 7 8 18
Vcc
IF OUT
REFERENCE VOLTAGE
FM IF INPUT
INPUT DC NF
INPUT DC NF
GND
AM IF INPUT
1st IF AMP
2nd IF AMP
3rd IF AMP
Limiter AMP
Quadrature Detector
AFC AMP
AFC OUT
Mute IF AMP
0V Switch
Audio AMP
FM OUTPUT
Level Detector
Level Detector
Level Detector
Level Detector
AudioMute Circuit
MUTE IN
Signal Meter Circuit
Mute Drive Circuit
1st IF AMP
2nd IF AMP
OR Circuit
MUTE OU
BYPATH
AM IF OUTPUT
METER OUT
GND

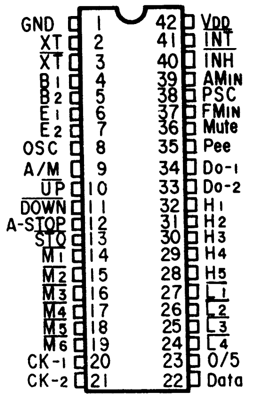
TA75558S

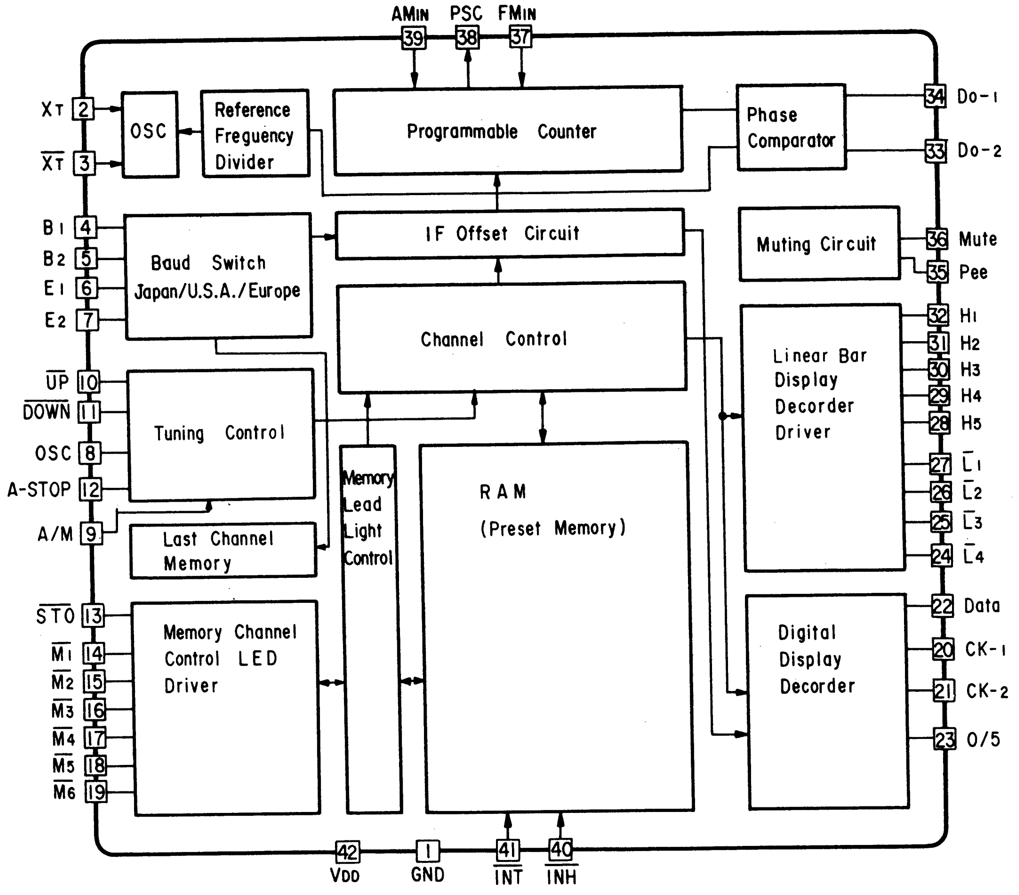

A
B
1
2
3
4
5
6
7
8
9
VCC
OUT A
−INA
+INA
VEE
+INB
−INB
OUT B
VCC

TD6301P

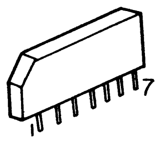

L/D 1
Data 2
CK1 3
CK2 4
I/O 5
g3 6
f3 7
e3 8
d3 9
c3 10
b3 11
a3 12
g2 13
GND 14
28 Vcc
27 a1
26 b1
25 c1
24 d1
23 e1
22 f1
21 g1
20 a2
19 b2
18 c2
17 d2
16 e2
15 f2
a1 b1 c1 d1 e1 f1 g1
a2 b2 c2 d2 e2 f2 g2
a3 b3 c3 d3 e3 f3 g3
I/O
Data
CK1
CK2
L/D
Vcc
GND
Control Circuit
Counter
Decoder
7 segment driver
7 segment driver
7 segment driver
Driver
Latch
Latch
Latch
Latch
Adder
Adder
Adder
Binary to BCD + IF offset ROM

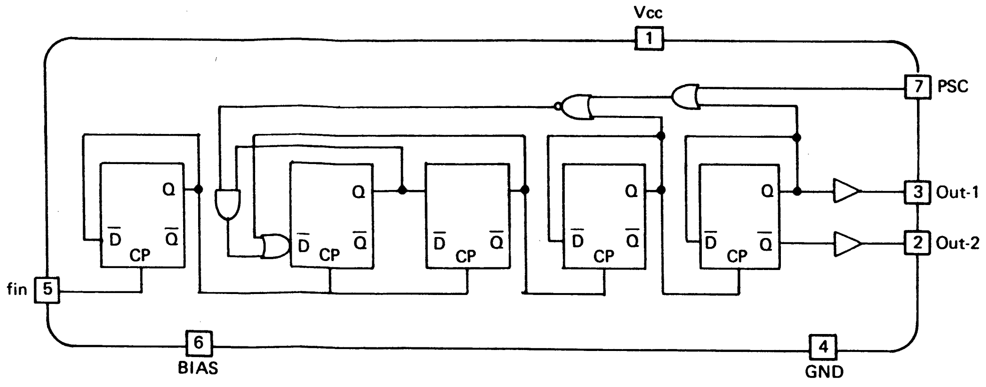
TC9137P


GND
XT
XT
B1
B2
E1
E2
OSC
A/M
UP
DOWN
A-STOP
STO
M1
M2
M3
M4
M5
M6
CK-1
CK-2
VDD
INT
INH
AMIN
PSC
FMIN
Mute
Pee
Do-1
Do-2
H1
H2
H3
H4
H5
L1
L2
L3
L4
0/5
Data

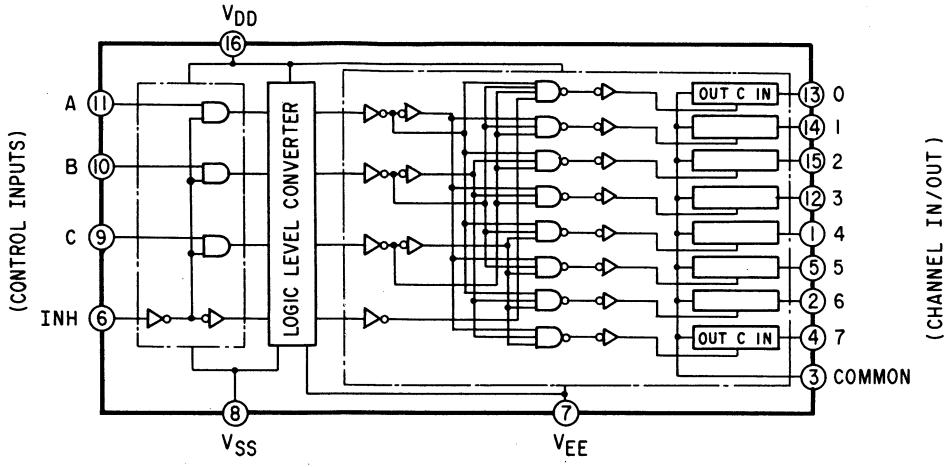

AMIN
PSC
FMIN
XT
XT
OSC
Reference Frequency Divider
Programmable Counter
Phase Comparator
Do-1
Do-2
B1
B2
E1
E2
Baud Switch Japan/U.S.A./Europe
IF Offset Circuit
Muting Circuit
Mute
Pee
Channel Control
Linear Bar Display Decorder Driver
H1
H2
H3
H4
H5
L1
L2
L3
L4
UP
DOWN
OSC
A-STOP
A/M
Tuning Control
Memory Lead Light Control
RAM (Preset Memory)
Last Channel Memory
STO
M1
M2
M3
M4
M5
M6
Memory Channel Control LED Driver
Digital Display Decorder
Data
CK-1
CK-2
0/5
VDD
GND
INT
INH

TD6104P

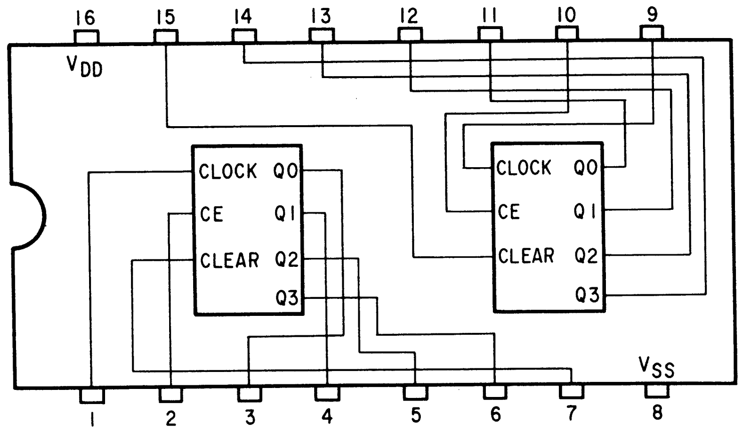



Vcc
PSC
Q
D
CP
Q
Out-1
Out-2
fin
BIAS
GND

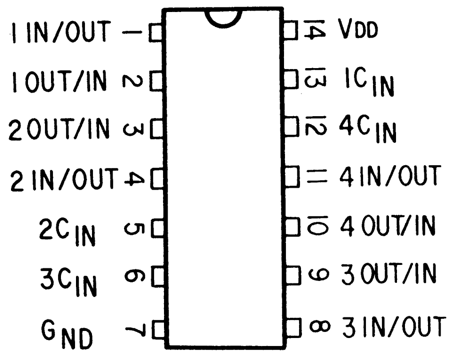
TC4051BP


VDD
(CONTROL INPUTS)
A
B
C
INH
LOGIC LEVEL CONVERTER
OUT C IN
(CHANNEL IN/OUT)
0
1
2
3
4
5
6
7
COMMON
VSS
VEE

TC4518BP


16
15
14
13
12
11
10
9
VDD
CLOCK
CE
CLEAR
Q0
Q1
Q2
Q3
VSS
1
2
3
4
5
6
7
8

TC4066P


1 IN/OUT
1 OUT/IN
2 OUT/IN
2 IN/OUT
2CIN
3CIN
GND
VDD
1CIN
4CIN
4 IN/OUT
4 OUT/IN
3 OUT/IN
3 IN/OUT

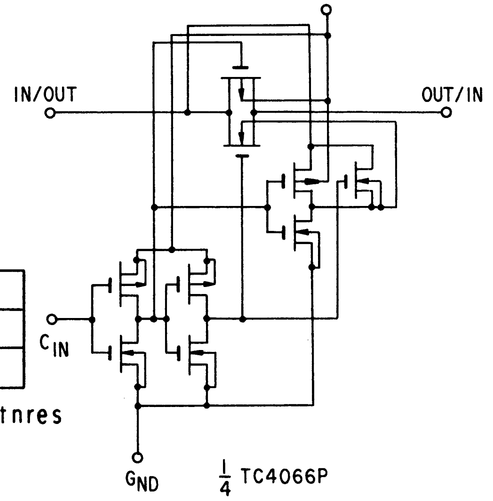
TRUTH TABLE

CIN	IN/OUT - OUT/IN
H	RON *
L	Z

* Refer to electric featnres

Z High inpedance

SCHEMATIC DIAGRAM


VDD
IN/OUT
OUT/IN
CIN
GND
1/4 TC4066P

DISPLAY TUBE

FIP7B8BS

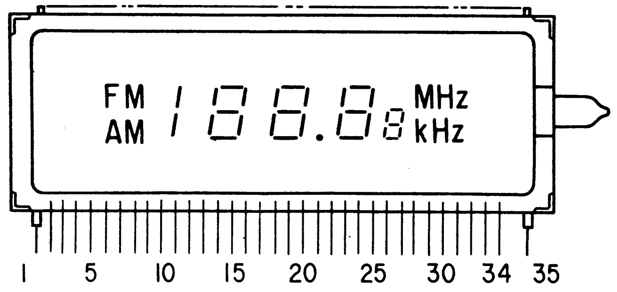

FM
AM
MHz
kHz
1
5
10
15
20
25
30
34
35

Figure 31.

ELECTRODE CONNECTION

Terminal No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Electrode connected	F	P(b5 c5)	P(a4)	P(f4)	P(e4)	P(d4)	P(c4)	G	P(g4)	P(b4)	P(a3)	P(f3)	P(e3)	P(d3)	P(c3)	P(g3)	P(b3)	P(a2)

Terminal No	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Electrode connected	G	P(f2)	P(e2)	P(d2)	P(c2)	P(g2)	P(b2)	P(b1 e1)	P(g1)	P(kHz)	P(MHz)	P(FM DP)	P(AM)	P(a1d1 af1)	G	G	F

DISPLAY PATTERN

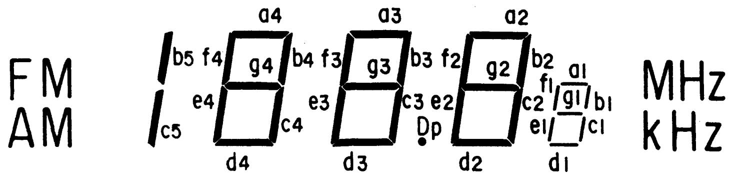

FM
AM
a4
a3
a2
b5
f4
g4
b4
f3
g3
b3
f2
g2
b2
a1
f1
g1
b1
c5
e4
c4
e3
c3
e2
DP
c2
e1
c1
d4
d3
d2
d1
MHz
kHz

Figure 32.

6. ELECTRICAL PARTS LOCATIONS

Q108

	—	1.8 V / 0V	17
16	3.5 V / 4 V	3.8V / 2.8 V	1
15	5.6 V	0 V	2
14	5.7 V	0.6V / 0.8 V	3
13	5.7 V	0.2 V	4
12	5.7 V	0V	5
11	10.4 V / 11.4 V	0.5V / 0.6 V	6
10	4.6 V / 5.2 V	0.5 V / 0.8 V	7
9	0.1 V / 0 V	0.5 V / 0.6 V	8
	—	0 V	18

FM / AM

Q402

1	6.1 V
2	5.4 V
3	5.2 V
4	0 V
5	4.6 V
6	4.6 V
7	1.9 V / 3.2 V

Q109

1	1.3 V / 0 V
2	1.4 V / 0 V
3	5.7 V
4	5.4 V
5	0 V
6	5 V / 0 V
7	5.6 V
8	1.4 V / 0 V

FM / VD

Q701

8	0 V	0 V	9
7	0 V	0 V	10
6	2.1V	0V	11
5	4.4V	4.4 V	12
4	—	4.4 V	13
3	0 V	4.4 V	14
2	0.8 V	4.4 V	15
1	4.4 V	5.3 V	16

Q702

8	0V	0V	9
7	0 V	2.1 V	10
6	—	0 V	11
5	—	0 V	12
4	—	0 V	13
3	—	0 V	14
2	0V	0V	15
1	0 V	5.3V	16

Q104

E	B	C	
0V / 8.2V	0V / 8.2V	0V / 10.4V	FM / AM

Q201

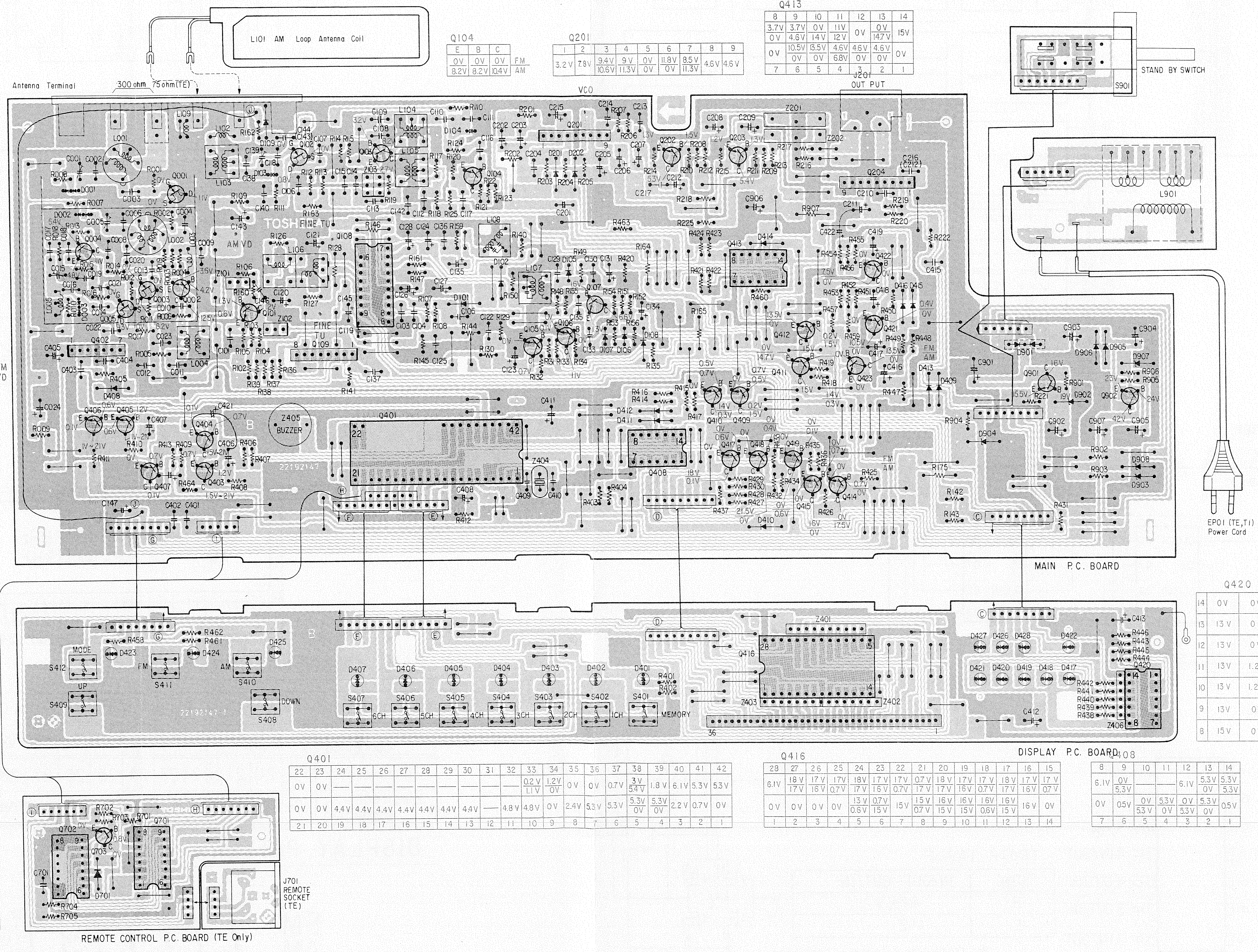
1	2	3	4	5	6	7	8	9
3.2 V	7.8V	9.4V / 10.6V	9 V / 11.3V	0V / 0V	11.8V / 0V	8.5V / 11.3V	4.6V	4.6 V

Q204

9	8	7	6	5	4	3	2	1
0V	0V	0 V	2.2V	0 V	1.6V	1.4V	3.4V	1.1V

Q413

8	9	10	11	12	13	14
3.7V / 0V	3.7V / 4.6V	0V / 14 V	11V / 12 V	0V	0V / 14.7 V	15V
0V	10.5V / 0V	13.5V / 0V	4.6V / 6.8V	4.6V / 0V	4.6V / 0V	0V
7	6	5	4	3	2	1


L101 AM Loop Antenna Coil
Antenna Terminal
300 ohm
75 ohm(TE)
VCO
J201
OUT PUT
STAND BY SWITCH
S901
L901
EP01 (TE,TI)
Power Cord
TOSHIBA
FINE TU
AM VD
Z405
BUZZER
Q401
MAIN P.C. BOARD
MODE
FM
AM
UP
DOWN
S412
S411
S410
S409
S408
S407
S406
S405
S404
S403
S402
S401
6CH
5CH
4CH
3CH
2CH
1CH
MEMORY
Z401
Q416
Z402
Z403
Z406
Q420
DISPLAY P.C. BOARD
Q702
Q701
J701
REMOTE
SOCKET
(TE)
REMOTE CONTROL P.C. BOARD (TE Only)

Q420

14	0V	0V	1
13	13 V	0 V	2
12	13 V	0 V	3
11	13V	1.2 V	4
10	13 V	1.2 V	5
9	13V	0V	6
8	15 V	0V	7

Q401

22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
0V	0V	—	—	—	—	—	—	—	—	—	0.2 V / 1.1 V	1.2V / 0V	0V	0V	0.7V	3V / 5.4V	1.8 V	6.1V	5.3V	5.3V
0V	0V	4.4V	4.4V	4.4V	4.4V	4.4V	4.4V	4.4V	—	4.8V	4.8V	0V	2.4V	5.3V	5.3V	5.3V / 0V	5.3V / 0V	2.2V	0.7V	0V
21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Q416

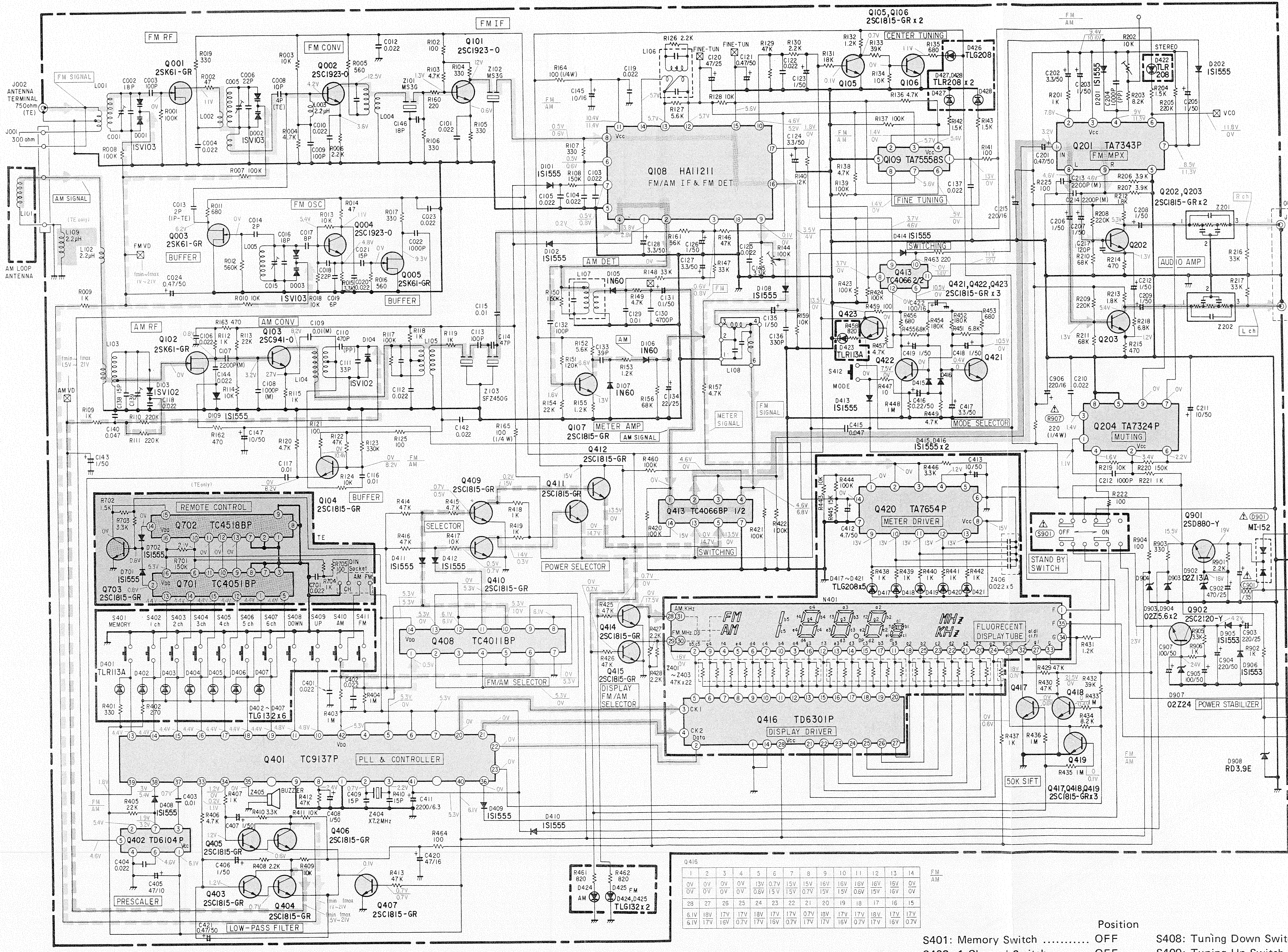
28	27	26	25	24	23	22	21	20	19	18	17	16	15
6.1V	18 V / 17 V	17 V / 16 V	17V / 0.7V	18V / 17 V	17 V / 16 V	17V / 0.7V	0.7 V / 17 V	18 V / 17 V	17V / 16V	17 V / 0.7 V	18 V / 17 V	17 V / 16 V	17 V / 0.7 V
0 V	0 V	0 V	0V	13 V / 0.6 V	0.7V / 15 V	15 V	15 V / 0.7 V	16 V / 15 V	16 V / 15V	1.6V / 0.6V	16 V / 15 V	16 V	0V
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Q408

8	9	10	11	12	13	14
6.1V	0V / 5.3V	—	—	6.1V	5.3V / 0V	5.3V / 5.3V
0V	0.5V	0V / 5.3 V	5.3V / 0V	0V / 5.3V	5.3 V / 0V	0.5V
7	6	5	4	3	2	1

Figure 15.

7. SCHEMATIC DIAGRAM


FM RF
FM IF
FM CONV
FM OSC
BUFFER
AM RF
AM CONV
AM DET
METER AMP
AM SIGNAL
FM SIGNAL
J002 ANTENNA TERMINAL 75Ohm (TE)
J001 300 ohm
AM LOOP ANTENNA
Q001 2SK61-GR
Q002 2SC1923-O
Q003 2SK61-GR
Q004 2SC1923-O
Q005 2SK61-GR
Q101 2SC1923-O
Q102 2SK61-GR
Q103 2SC941-O
Q104 2SC1815-GR
Q105,Q106 2SC1815-GR x 2
CENTER TUNING
FINE TUNING
Q107 2SC1815-GR
Q108 HA11211 FM/AM IF & FM DET
Q109 TA7555BS
Q201 TA7343P FM MPX
Q202,Q203 2SC1815-GR x 2
AUDIO AMP
Q204 TA7324P MUTING
OUTPUT J201 R ch L ch
STEREO
MODE SELECTOR
SWITCHING
Q413 TC4066 2/2
Q421,Q422,Q423 2SC1815-GR x 3
Q420 TA7654P METER DRIVER
Q412 2SC1815-GR
Q413 TC4066BP 1/2
POWER SELECTOR
Q409 2SC1815-GR
Q410 2SC1815-GR
Q411 2SC1815-GR
SELECTOR
Q702 TC4518BP
Q701 TC4051BP
Q703 2SC1815-GR
REMOTE CONTROL
S401 MEMORY
S402 1 ch
S403 2 ch
S404 3 ch
S405 4 ch
S406 5 ch
S407 6 ch
S408 DOWN
S409 UP
S410 AM
S411 FM
Q408 TC4011BP
FM/AM SELECTOR
Q414 2SC1815-GR
Q415 2SC1815-GR
DISPLAY FM/AM SELECTOR
N401 FLUORECENT DISPLAY TUBE
Q416 TD6301P DISPLAY DRIVER
Q417,Q418,Q419 2SC1815-GRx3
50K SHIFT
Q401 TC9137P PLL & CONTROLLER
Q402 TD6104P
PRESCALER
Q403 2SC1815-GR
Q404 2SC1815-GR
Q405 2SC1815-GR
Q406 2SC1815-GR
Q407 2SC1815-GR
LOW-PASS FILTER
Z404 X'TAL 7.2MHz
BUZZER
Q901 2SD880-Y
Q902 2SC2120-Y
POWER STABILIZER
STAND BY SWITCH
S901 OFF ON
EP01 AC220V AC240V 50Hz
D424,D425 TLG132x2

Q416

1	2	3	4	5	6	7	8	9	10	11	12	13	14
0V 0V	0V 0V	0V 0V	0V 0V	13V 0.6V	0.7V 15V	15V 15V	15V 0.7V	16V 15V	16V 15V	16V 0.6V	16V 15V	16V 16V	0V 0V
28	27	26	25	24	23	22	21	20	19	18	17	16	15
6.1V 6.1V	18V 17V	17V 16V	17V 0.7V	18V 17V	17V 16V	17V 0.7V	0.7V 17V	18V 17V	17V 16V	17V 0.7V	18V 17V	17V 16V	17V 0.7V

FM
AM

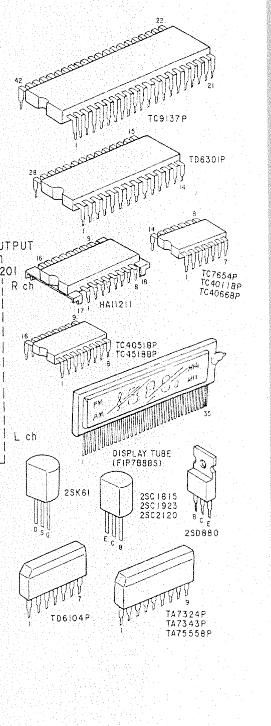

TC9137P
TD6301P
TA7654P
TC4011BP
TC4066BP
HA11211
TC4051BP
TC4518BP
DISPLAY TUBE (FIP7B8BS)
2SK61
2SC1815
2SC1923
2SC2120
2SD880
TD6104P
TA7324P
TA7343P
TA7555BP

Figure 16.

	Position
S401: Memory Switch	OFF
S402: 1 Channel Switch	OFF
S403: 2 Channel Switch	OFF
S404: 3 Channel Switch	OFF
S405: 4 Channel Switch	OFF
S406: 5 Channel Switch	OFF
S407: 6 Channel Switch	OFF
S408: Tuning Down Switch	OFF
S409: Tuning Up Switch	OFF
S410: AM Switch	OFF
S411: FM Switch	OFF
S412: Mode Switch	STEREO
Muting Switch	ON
S901: Standby Switch	OFF

8. CABINET EXPLODED VIEW

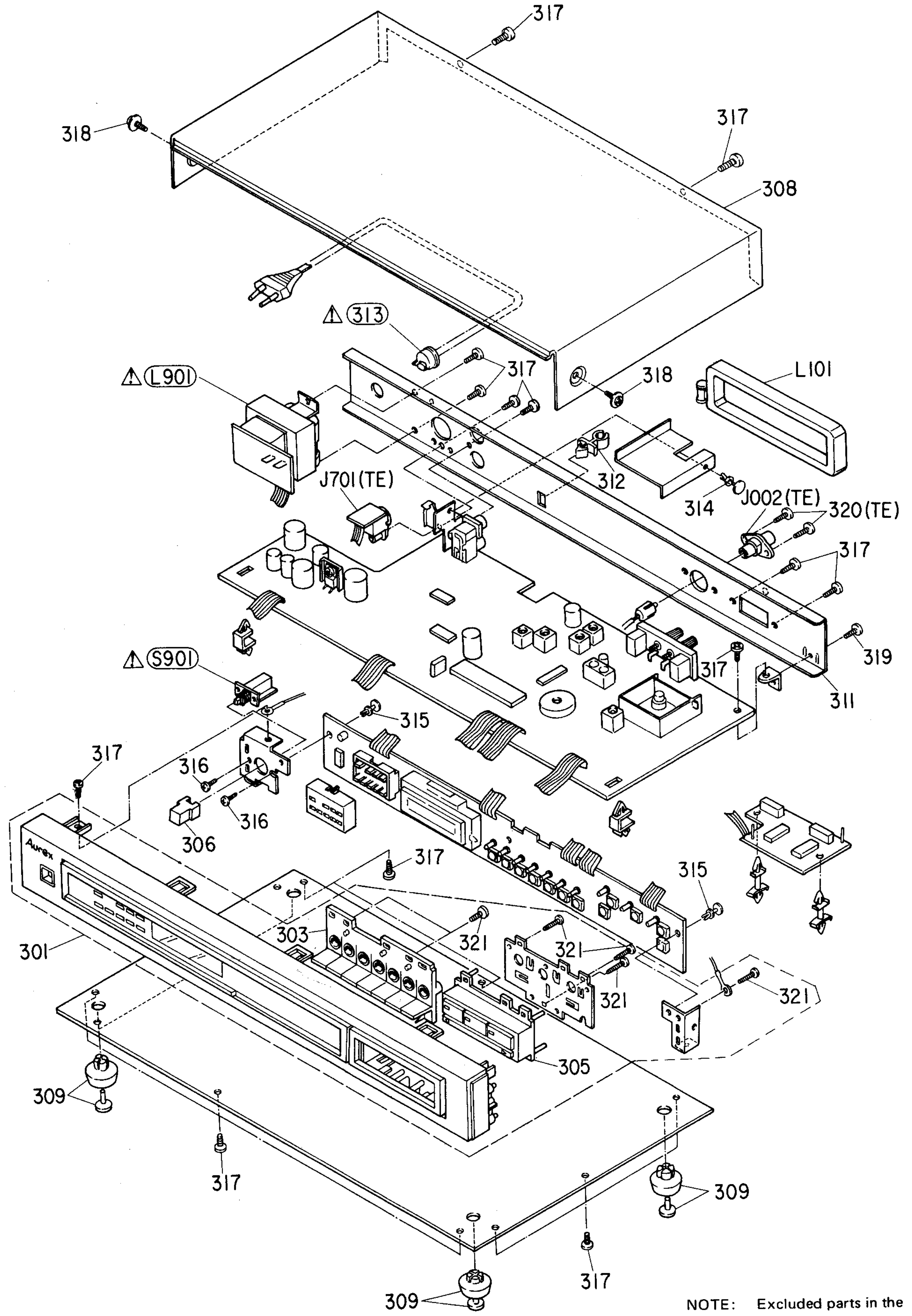

317
318
317
308
⚠313
⚠L901
317
318
L101
J701(TE)
312
314
J002(TE)
320(TE)
317
319
311
⚠S901
317
315
317
316
316
306
317
315
303
321
321
321
321
301
305
309
317
309
309
317
Aurex

Figure 17.

NOTE: Excluded parts in the Parts List are not available as replacement parts.

9. CABINET PARTS LIST

Symbol No.	Part No.	Description
CABINET PARTS		
301	20017207	Panel Ass'y (TE, IT, AY)
301	20017208	Panel Ass'y (TU)
303	25837796	Knob, Preset
305	22826380	Knob Ass'y, Function
306	22824381	Knob Ass'y, Power
308	22841303	Top Cover
309	22828066	Foot
311	20015323	Jack Plate (TE)
311	20015324	Jack Plate (TU, AY)
311	20015325	Jack Plate (IT)
312	22757109	Antenna Holder
⚠ 313	25845528	Cord Bush
314	22705021	Plastic Rivet, 3φ x 3.5mm (IT)
315	22705020	Plastic Rivet, 3φ x 4.5mm
316	22707066	Screw, 3φ x 6mm, BID
317	22701326	Screw, 3φ x 8mm, BID Tapping
318	22707696	Screw, 3φ x 8mm, TPAN, Chrome
319	22707066	Screw, 3φ x 6mm, FTBID
320	22707397	Screw, 2.6φ x 5mm, DTBID (TE)
321	22707165	Screw 3 x 10mm, BID Tapping

10. PARTS LIST

CAUTION: The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

TRANSISTORS, IC'S & DIODES

Symbol No.	Part No.	Description
Q001	A6041060	Transistor, 2SK61-GR
Q002	A6319020	Transistor, 2SC1923-O
Q003	A6041060	Transistor, 2SK61-GR
Q004	A6319020	Transistor, 2SC1923-O
Q005	A6041060	Transistor, 2SK61-GR
Q101	A6319020	Transistor, 2SC1923-O
Q102	A6041060	Transistor, 2SK61-GR
Q103	A6752840	Transistor, 2SC941TM-O
Q104, 105, 106, 107	A6317460	Transistor, 2SC1815NEW-GR
Q108	22114626	IC, HA11211
Q109	B0350510	IC, TA75558S
Q201	B0325350	IC, TA7343P
Q202, 203	A6317460	Transistor, 2SC1815NEW-GR
Q204	B0325060	IC, TA7324P
Q401	B0411370	IC, TC9137P
Q402	B0271820	IC, TD6104P
Q403, 404, 405, 406, 407	A6317460	Transistor, 2SC1815NEW-GR
Q408	B0470116	IC, TC4011BP
Q409, 410, 411, 412	A6317460	Transistor, 2SC1815NEW-GR
Q413	B0470662	IC, TC4066BP
Q414, 415	A6317460	Transistor, 2SC1815NEW-GR
Q416	B0272005	IC, TD6301AP
Q417, 418, 419	A6317460	Transistor, 2SC1815NEW-GR
Q420	B0356540	IC, TA7654P
Q421, 422, 423	A6317460	Transistor, 2SC1815NEW-GR
Q701	B0470512	IC, TC4051BP (TE)
Q702	B0475182	IC, TC4518BP (TE)
Q703	A6317460	Transistor, 2SC1815NEW-GR (TE)
Q901	A6848520	Transistor, 2SD880-Y
Q902	A6321240	Transistor, 2SC2120-Y
D001, 002, 003	A7288660	Diode, 1SV103
D101, 102	A7246703	Diode, 1S1555V
D103, 104	A7288650	Diode, 1SV102
D105, 106, 107	22115603	Diode, 1N60FD1
D108, 109	A7246703	Diode, 1S1555V
D201, 202	A7246703	Diode, 1S1555V
D401	A8600607	Diode, TLR113A
D402, 403	A8605666	Diode, TLG113A
D404, 405, 406, 407	A8605666	Diode, TLG113A
D408, 409, 410, 411, 412, 413, 414, 415, 416	A7246703	Diode, 1S1555V
D417, 418, 419, 420, 421	A8606660	Diode, TLG208
D422	A8603140	Diode, TLR208
D423	A8600607	Diode, TLR113A
D424, 425	A8605666	Diode, TLG113A
D426	A8606660	Diode, TLG208
D427, 428	A8603140	Diode, TLR208
D701, 702	A7246703	Diode, 1S1555V
⚠ D901	22115427	Diode, MI-152
D902	A7287700	Diode, 02Z13A
D903, 904	A7285900	Diode, 02Z5.6A
D905, 906	A7246601	Diode, 1S1553V
D907	A7288500	Diode, 02Z24A
D908	22115410	Diode, RD3.9E

COILS & TRANSFORMERS

Symbol No.	Part No.	Description
L001	22292078	Coil, FM Antenna
L002	22294422	Coil, FM RF
L003	22291082	Coil, Choke, 2.2μH
L004	22265727	IF Transformer, FM
L005	22295116	Coil, FM Oscillator
L101	22242915	Coil, Loop Antenna
L102	22291082	Coil, Choke, 2.2μH
L103	22242916	Coil, AM Antenna
L104	22245358	Coil, AM Oscillator
L105	22264626	IF Transformer, AM
L106	22267402	IF Transformer, FM
L107	22266326	IF Transformer, AM
L108	22153193	Filter, Low-pass, FTZ
L109	22291082	Coil, Choke, 2.2μH (TE)
⚠ L901	22224114	Transformer, Power (TU, AY)
⚠ L901	22224091	Transformer, Power (TE, IT)

ELECTRICAL PARTS

Symbol No.	Part No.	Description
S401	22195924	Switch, Key, Memory
S402	22195924	Switch, Key, 1 ch
S403	22195924	Switch, Key, 2 ch
S404	22195924	Switch, Key, 3 ch
S405	22195924	Switch, Key, 4 ch
S406	22195924	Switch, Key, 5 ch
S407	22195924	Switch, Key, 6 ch
S408	22195924	Switch, Key, Down
S409	22195924	Switch, Key, UP
S410	22195924	Switch, Key, AM
S411	22195924	Switch, Key, FM
S412	22195924	Switch, Key, Mode
⚠ S901	22196117	Switch, Push, Standby
N401	22104548	Display Tube, FIP7B8BS
J001	22162468	Terminal, 4P, Antenna (TU, AY, IT)
J001	22162471	Terminal, 2P, Antenna (TE)
J002	22162492	Terminal, 1P, Antenna (TE)
J201	22163821	Jack, US2P, Output
J701	22167908	DIN Socket, 5P (TE)
Z101, 102	22153124	Filter, Ceramic, 10.7 MHz
Z103	22153184	Filter, Ceramic, 450 kHz
Z201, 202	22134115	Filter, FM MPX, 38 kHz
Z401	22540472	Composite Part, 47K ohm x 9
Z402	22540265	Composite Part, 47K ohm x 7
Z403	22540473	Composite Part, 47K ohm x 6
Z404	22153141	Crystal, 7.2 MHz
Z405	22152373	Buzzer, 3cm
Z406	22135055	Composite Part, 0.022mfd x 5
⚠ EP01	22176286	Power Cord (TE, IT)
⚠ EP01	22176628	Power Cord (TU)
⚠ EP01	22176588	Power Cord (AY)

CAPACITORS

D = ±0.5pF, J = ±5%, K = ±10%, M = ±20%, Z = +80–20%

Abbreviations: CD = Ceramic Disk, EL = Electrolytic, MY = Mylar, PP = Polypropylene

Symbol No.	Part No.	Description
C001	22309180	Trimmer, Max 7pF
C002	22362180	CD, 18pF, 50V, K
C003	22362101	CD, 100pF, 50V, K
C004	22342223	CD, 0.022mfd, 50V, Z
C005	22309180	Trimmer, Max 7pF
C006	22362220	CD, 22pF, 50V, K
C008	22361409	CD, 4pF, 50V, D (TE)
C008	22361100	CD, 10pF, 50V, D (TU, AY)
C009	22362101	CD, 100pF, 50V, K
C010	22342223	CD, 0.022mfd, 50V, Z
C012	22342223	CD, 0.022mfd, 50V, Z
C013	22361109	CD, 1pF, 50V, D (TE)
C013	22361209	CD, 2pF, 50V, D (TU, AY)
C014	22361209	CD, 2pF, 50V, D
C015	22309180	Trimmer, Max 7pF
C016	22362180	CD, 18pF, 50V, K
C017	22361809	CD, 8pF, 50V, D
C018	22362220	CD, 22pF, 50V, K
C019	22361609	CD, 6pF, 50V, D
C020	22342223	CD, 0.022mfd, 50V, Z
C021	22362150	CD, 15pF, 50V, K
C022	22349102	CD, 1000pF, 50V, K
C023	22342223	CD, 0.022mfd, 50V, Z
C024	22488478	EL, 0.47mfd, 50V
C101	22342223	CD, 0.022mfd, 50V, Z
C103	22342223	CD, 0.022mfd, 50V, Z
C104	22342223	CD, 0.022mfd, 50V, Z
C105	22342223	CD, 0.022mfd, 50V, Z
C106	22342223	CD, 0.022mfd, 50V, Z
C107	22371222	MY, 2200pF, 50V, J
C108	22371102	MY, 1000pF, 50V, J
C109	22371103	MY, 0.01mfd, 50V, J
C110	22321053	PP, 470pF, 50V, J
C111	22362330	CD, 33pF, 50V, K
C112	22342223	CD, 0.022mfd, 50V, Z
C113	22362101	CD, 100pF, 50V, K
C114	22362470	CD, 47pF, 50V, K
C115	22342103	CD, 0.01mfd, 50V, Z
C116	22342103	CD, 0.01mfd, 50V, Z
C117	22342103	CD, 0.01mfd, 50V, Z
C118	22342223	CD, 0.022mfd, 50V, Z
C119	22342223	CD, 0.022mfd, 50V, Z
C120	22483470	EL, 47mfd, 10V
C121	22488478	EL, 0.47mfd, 50V
C122	22342223	CD, 0.022mfd, 50V, Z
C123	22488109	EL, 1mfd, 50V
C124	22488339	EL, 3.3mfd, 50V
C125	22342223	CD, 0.022mfd, 50V, Z
C126	22488109	EL, 1mfd, 50V
C127	22488339	EL, 3.3mfd, 50V
C128	22488339	EL, 3.3mfd, 50V
C129	22342103	CD, 0.01mfd, 50V, Z
C130	22349472	CD, 4700pF, 50V, K
C131	22480003	EL, 0.1mfd, 50V
C132	22362101	CD, 100pF, 50V, K
C133	22362390	CD, 39pF, 50V, K
C134	22486220	EL, 22mfd, 25V
C135	22488109	EL, 1mfd, 50V
C136	22362331	CD, 330pF, 50V, K
C137	22342223	CD, 0.022mfd, 50V, Z
C138	22362150	CD, 15pF, 50V, K
C139	22309180	Trimmer, Max 7pF
C140	22342473	CD, 0.047mfd, 50V, Z
C142	22342223	CD, 0.022mfd, 50V, Z
C143	22488109	EL, 1mfd, 50V
C144	22342223	CD, 0.022mfd, 50V, Z
C145	22485470	EL, 47mfd, 16V
C146	22362180	CD, 18pF, 50V, K
C147	22488100	EL, 10mfd, 50V
C201	22488478	EL, 0.47mfd, 50V
C202	22488339	EL, 3.3mfd, 50V
C203	22488109	EL, 1mfd, 50V

Symbol No.	Part No.	Description
C204	22321032	PP, 1000pF, 50V, K
C205	22488109	EL, 1mfd, 50V
C206, 207	22488109	EL, 1mfd, 50V
C208, 209	22488109	EL, 1mfd, 50V
C210	22342223	CD, 0.022mfd, 50V, Z
C211	22488100	EL, 10mfd, 50V
C212	22488109	EL, 1mfd, 50V
C213, 214	22371222	MY, 2200pF, 50V, J
C215	22485221	EL, 220mfd, 16V
C216	22349102	CD, 1000pF, 50V, K
C217	22362121	CD, 120pF, 50V, K
C218	22488109	EL, 1mfd, 50V
C401	22342223	CD, 0.022mfd, 50V, Z
C402	22342223	CD, 0.022mfd, 50V, Z
C403	22342103	CD, 0.01mfd, 50V, Z
C404	22342223	CD, 0.022mfd, 50V, Z
C405	22483470	EL, 47mfd, 10V
C406	22488109	EL, 1mfd, 50V
C407	22488109	EL, 1mfd, 50V
C408	22488109	EL, 1mfd, 50V
C409, 410	22362150	CD, 15pF, 50V, K
C411	22482222	EL, 2200mfd, 6.3V
C412	22488479	EL, 4.7mfd, 50V
C413	22488100	EL, 10mfd, 50V
C415	22342473	CD, 0.047mfd, 50V, Z
C416	22488228	EL, 0.22mfd, 50V
C417	22488339	EL, 3.3mfd, 50V
C418	22488109	EL, 1mfd, 50V
C419	22488109	EL, 1mfd, 50V
C420	22485470	EL, 47mfd, 16V
C421	22488478	EL, 0.47mfd, 50V
C422	22485101	EL, 100mfd, 16V
C701	22342223	CD, 0.022mfd, 50V, Z (TE)
C901	22487102	EL, 1000mfd, 35V
C902	22486471	EL, 470mfd, 25V
C903	22486221	EL, 220mfd, 25V
C904	22488221	EL, 220mfd, 50V
C905	22488101	EL, 100mfd, 50V
C906	22485221	EL, 220mfd, 16V
C907	22488101	EL, 100mfd, 50V

RESISTORS

All resistors are carbon film ¼W, ±5% unless otherwise noted. 1K ohm = 1000 ohm, 1M ohm = 1000000 ohm

Symbol No.	Part No.	Description
R001	22545104	100K ohm
R002	22545470	47 ohm
R003	22545103	10K ohm
R004	22545472	4.7K ohm
R005	22545561	560 ohm
R006	22545222	2.2K ohm
R007	22545104	100K ohm
R008	22545104	100K ohm
R009	22545102	1K ohm
R010	22545103	10K ohm
R011	22545681	680 ohm
R012	22545564	560K ohm
R013	22545103	10K ohm
R014	22545470	47 ohm
R015	22545332	3.3K ohm
R016	22545561	560 ohm
R017	22545331	330 ohm
R018	22545103	10K ohm
R019	22545331	330 ohm
R102	22545101	100 ohm
R103	22545472	4.7K ohm
R104	22545331	330 ohm
R105	22545331	330 ohm
R106	22545331	330 ohm
R107	22545331	330 ohm
R108	22545154	150K ohm
R109	22545102	1K ohm
R110	22545224	220K ohm
R111	22545224	220K ohm
R112	22545102	1K ohm
R113	22545223	22K ohm
R114	22545103	10K ohm
R115	22545102	1K ohm
R117	22545104	100K ohm
R118	22545102	1K ohm
R119	22545102	1K ohm
R120	22545472	4.7K ohm
R121	22545101	100 ohm
R122	22545473	47K ohm
R123	22545334	330K ohm
R124	22545103	10K ohm
R125	22545101	100 ohm
R126	22545222	2.2K ohm
R127	22545562	5.6K ohm
R128	22545103	10K ohm
R129	22545473	47K ohm
R130	22545222	2.2K ohm
R131	22545183	18K ohm
R132	22555122	1.2K ohm
R133	22555393	39K ohm
R134	22545103	10K ohm
R135	22545681	680 ohm
R136	22545472	4.7K ohm
R137	22545104	100K ohm
R138	22545472	4.7K ohm
R139	22545104	100K ohm
R140	22545123	12K ohm
R141	22545101	100 ohm
R142	22555152	1.5K ohm
R143	22555152	1.5K ohm
R144	22658495	100K ohm, Semi-fixed Variable

Symbol No.	Part No.	Description
R145	22545333	33K ohm
R146	22545473	47K ohm
R147	22545333	33K ohm
R148	22545333	33K ohm
R149	22545472	4.7K ohm
R150	22545154	150K ohm
R151	22545124	120K ohm
R152	22545562	5.6K ohm
R153	22555122	1.2K ohm
R154	22545223	22K ohm
R155	22555122	1.2K ohm
R156	22545683	68K ohm
R157	22545472	4.7K ohm
R158	22545472	4.7K ohm
R159	22545103	10K ohm
R160	22545221	220 ohm
R161	22545563	56K ohm
R162	22545471	470 ohm
R163	22545471	470 ohm
R164, 165	22545101	100 ohm
R175	22545472	4.7K ohm
R201	22545102	1K ohm
R202	22658498	10K ohm, Semi-fixed Variable
R203	22545822	8.2K ohm
R204	22545152	1.5K ohm
R205	22545224	220K ohm
R206, 207	22545682	6.8K ohm
R208, 209	22545224	220K ohm
R210, 211	22545683	68K ohm
R212, 213	22545182	1.8K ohm
R214, 215	22545471	470 ohm
R216, 217	22545333	33K ohm
R218	22545682	6.8K ohm
R219	22545103	10K ohm
R220	22545154	150K ohm
R221	22545102	1K ohm
R222	22545101	100 ohm
R225	22545101	100 ohm
R401	22545331	330 ohm
R402	22545271	270 ohm
R403	22545105	1M ohm
R404	22545105	1M ohm
R405	22545223	22K ohm
R406	22545472	4.7K ohm
R407	22545102	1K ohm
R408	22545222	2.2K ohm
R409	22545103	10K ohm
R410	22545332	3.3K ohm
R411	22545103	10K ohm
R412	22545473	47K ohm
R413	22545473	47K ohm
R414	22545473	47K ohm
R415	22545472	4.7K ohm
R416	22545473	47K ohm
R417	22545103	10K ohm
R418	22545102	1K ohm
R419	22545102	1K ohm
R420	22545104	100K ohm
R421	22545104	100K ohm
R422	22545104	100K ohm
R423	22545104	100K ohm
R424	22545104	100K ohm
R425, 426	22545473	47K ohm
R427, 428	22545222	2.2K ohm
R429	22545473	47K ohm
R430	22545473	47K ohm
R431	22555122	1.2K ohm
R432	22555393	39K ohm
R433	22545105	1M ohm
R434	22545822	8.2K ohm
R435	22545105	1M ohm
R436	22545105	1M ohm
R437	22545102	1K ohm
R438, 439	22545102	1K ohm
R440, 441	22545102	1K ohm
R442	22545102	1K ohm
R443	22545103	10K ohm
R444	22545104	100K ohm
R445	22545153	15K ohm
R446	22545332	3.3K ohm
R447	22545100	10 ohm
R448	22545105	1M ohm
R449	22545472	4.7K ohm
R450	22545472	4.7K ohm
R451	22545682	6.8K ohm
R452	22545184	180K ohm
R453	22545681	680 ohm
R454	22545184	180K ohm
R455	22545682	6.8K ohm
R456	22545681	680 ohm
R457	22545472	4.7K ohm
R458	22545821	820 ohm
R459	22545101	100 ohm
R460	22545104	100K ohm
R461, 462	22545821	820 ohm
R463	22545221	220 ohm
R464	22555101	100 ohm
R701	22555154	150K ohm (TE)
R702	22555152	1.5K ohm (TE)
R703	22555332	3.3K ohm (TE)
R704	22555102	1K ohm (TE)
R705	22555101	100 ohm (TE)
R901	22545222	2.2K ohm
R902	22545102	1K ohm
R903	22545331	330 ohm
R904	22545101	100 ohm

Symbol No.	Part No.	Description
R905	22545332	3.3K ohm
R906	22545102	1K ohm
R907	22545221	220 ohm
ACCESSORIES		
AC01	22124701	Feeder Ass'y, Antenna (TU, AY, IT)
AC02	22164775	Connector Cord
AC03	22903342	Owner's Manual (TE)
AC03	22903343	Owner's Manual (TU, AY)
AC03	22903344	Owner's Manual (IT)
AC04	22957480	FTZ Sheet (TE)